

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



94

Image

DAC  
(3)  
48

PTO/SB/64 (10-01)

Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED  
UNINTENTIONALLY UNDER 37 CFR 1.137(b)**Docket Number (Optional)  
2578-3982.2US

First named inventor: Vogels et al.

Application No.: 09/517,898

Group Art Unit: 1632

Filed: March 3, 2000

Examiner: Q. Li

Title: MEANS AND METHODS FOR FIBROBLAST-LIKE OR MACROPHAGE-LIKE CELL TRANSDUCTION

## Attention:

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

NOTE: If information or assistance is needed in completing this form, please contact Petitions Information at (703)305-9282.

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the Office notice or action plus any extensions of time actually obtained.

**APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION**

NOTE: A grantable petition requires the following items:

- (1) Petition fee;
- (2) Reply and/or issue fee;
- (3) Terminal disclaimer with disclaimer fee -- required for all utility and plant applications filed before June 8, 1995; and for all design applications; and
- (4) Statement that the entire delay was unintentional.

## 1. Petition fee

Small entity - fee \$665.00 (37 CFR 1.17(m)). Applicant claims small entity status. See 37 CFR 1.27.

Other than small entity - fee \$\_\_\_\_\_ (37 CFR 1.17(m))

## 2. Reply and/or fee

A. The reply and/or fee to the above-noted Office action in the form of Communication; Copy of Notice of Drawing Inconsistency with Specification; Copy of 312 Amendment and Part B - Fee Transmittal (identify type of reply):

has been filed previously on \_\_\_\_\_.

is enclosed herewith.

B. The issue fee of \$ 665.00

has been paid previously on \_\_\_\_\_.

is enclosed herewith.

[Page 1 of 2]

Burden Hour Statement: This form is estimated to take 1.0 hour to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

04/02/2004 AWONDAF1 00000100 09517898

01 FC:2453

665.00 0P

## 3. Terminal disclaimer with disclaimer fee

Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.

A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of \$\_\_\_\_ for a small entity or \$\_\_\_\_ for other than a small entity) disclaiming a period equivalent to the period of abandonment is enclosed herewith (see PTO/SB/63).

## 4. Statement. The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(b) was unintentional. [NOTE: The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137(b) was unintentional (MPEP 711.03(c)(III)(C) and (D))].

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

March 26, 2004

*Andrew F. Nilles*

Date

Signature

Telephone

Number: (801) 532-1922

Andrew F. Nilles

Typed or printed name

TraskBritt, P.C.

Address

P.O. Box 2550

Enclosures:  Fee Payment

Reply

Terminal Disclaimer Form

Additional sheets containing statements establishing unintentional delay

Other : Communication; Copy of Notice of Drawing Inconsistency with Specification; Copy of 312 Amendment and Part B - Fee Transmittal

**CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(A)]**

I hereby certify that this correspondence is being:

deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

transmitted by facsimile on the date shown below to the Patent and Trademark Office at (703) 308-6916.

March 26, 2004

*Betty Vowles*

Date

Betty Vowles

Typed or printed name of person signing certificate



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**In re Application of:**

Vogels et al.

**Serial No.:** 09/517,898

**Filed:** March 3, 2000

**For:** MEANS AND METHODS FOR  
FIBROBLAST-LIKE OR MACROPHAGE-  
LIKE CELL TRANSDUCTION

**Confirmation No.:** 5448

**Examiner:** Q. Li

**Group Art Unit:** 1632

**Attorney Docket No.:** 2578-3982.2US

CERTIFICATE OF MAILING

I hereby certify that this correspondence along with any attachments referred to or identified as being attached or enclosed is being deposited with the United States Postal Service as First Class Mail on the date of deposit shown below with sufficient postage and in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

March 26, 2004

Date

*Betty Vowles*

Betty Vowles  
Name (Type/Print)

COMMUNICATION

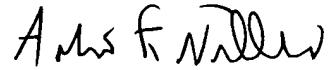
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Attached hereto is a copy of the Notice of Drawing Inconsistency with Specification and a copy of the Amendment Under 37 C.F.R. § 1.312(a) filed February 23, 2004 (along with a copy of the returned postcard). That Amendment contains the Brief Description of the Drawings for Figures 18B-20, which had been inadvertently dropped in a previous amendment. The original specification did contain the brief description of Figures 18B-20. Attachments to the original Amendment are not being resubmitted.

This case should now be in condition for publication. Should other questions arise, the Office is invited to contact Applicants' attorney at the phone number indicated below.

Respectfully submitted,



Andrew F. Nilles  
Registration No. 47,825  
Attorney for Applicant(s)  
TRASKBRITT, P.C.  
P.O. Box 2550  
Salt Lake City, Utah 84110-2550  
Telephone: 801-532-1922

Date: March 26, 2004  
AFN/bv  
Document in ProLaw



09/517,898

UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND  
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

**NOTICE OF DRAWING INCONSISTENCY WITH SPECIFICATION**

The drawings filed 3/3/00 have been received. However, an inconsistency exists between the drawings and the Brief Description of the Drawings in the specification.

Figures \_\_\_\_\_ are listed in the Brief Description of the Drawings in the specification but not contained in the Drawings.

Figures 18B-2D are contained in the Drawings but not listed in the Brief Description of the Drawings in the specification.

Applicant is required to correct the above-noted inconsistency within a time period of **ONE MONTH or THIRTY (30) DAYS**, whichever is longer, from the mailing date of this Notice, or within the time remaining in the time period set forth in the Notice of Allowability (Form PTOL-37) to file corrected drawings, whichever is longer. **NO EXTENSION OF THIS TIME PERIOD MAY BE GRANTED UNDER EITHER 37 CFR 1.136 (a) OR (b)**

Failure to correct the above noted inconsistency will result in abandonment of the application.

The file will be held in the Publishing Division to await the correction of the inconsistency.

**Return Corrected Drawings/Specification to:**

Mail Stop Issue Fee  
Commissioner for Patents  
P.O. Box 1450

Alexandria, VA 22313-1450

Office of Patent Publication/Publishing Division  
Customer Service: 703-308-6789  
1-888-786-0101



**COPY**

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re Application of:**

Vogels et al.

**Application Serial No.: 09/517,898**

**Filed: 03/03/2000**

**For: MEANS AND METHODS FOR  
FIBROBLAST-LIKE OR MACROPHAGE-  
LIKE CELL TRANSDUCTION**

**Confirmation No.: 5448**

**Examiner: Janice Li Quian**

**Group Art Unit: 1632**

**Attorney Docket No.: 2578-3982.2US**

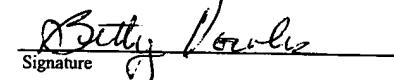
**Notice of Allowance Mailed: 12/24/2003**

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence along with any attachments referred to or identified as being attached or enclosed is being deposited with the United States Postal Service as First Class Mail on the date of deposit shown below with sufficient postage and in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

February 23, 2004

Date



Signature

Betty Vowles

Name (Type/Print)

**AMENDMENT UNDER 37 C.F.R. § 1.312(a)**

Mail Stop ISSUE FEE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In response to the Notice of Allowance and in view of the comments from the draftsperson, please amend the above-referenced application as follows.

**Amendments to the Specification** begin on page 3 of this paper.

**Amendments to the Drawing Figures** appear on page 6 of this paper. Replacement sheets and annotated sheets showing changes made are attached hereto.

**Remarks** begin on page 7 of this paper.

An **Appendix** including amended drawing figures is attached following page 7 of this paper.

IN THE SPECIFICATION:

Please replace the paragraph starting on page 25, line 13, and ending on line 18 with the following paragraph.

A fiber protein of adenovirus 16 preferably comprises at least part of the sequence given in FIG. 7 FIGS. 7A-C. However, within the scope of the present invention, other sequences may be used, for instance, obtained through using codon degeneracy. Alternatively, a fiber sequence may comprise amino-acid substitutions or insertions or deletions compared to the sequence depicted in FIG. 7 FIGS. 7A-C, as long as the desired tissue tropism determining property is not significantly altered. Amino-acid substitutions may be within the same polarity group or without.

Please replace the section entitled BRIEF DESCRIPTION OF THE DRAWINGS with the following section.

**BRIEF DESCRIPTION OF THE DRAWINGS**

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the U.S. Patent and Trademark Office upon request and payment of the necessary fee.

FIG. 1: Schematic drawing of the pBr/Ad.Bam-rITR construct.

FIG. 2: Schematic drawing of the strategy used to delete the fiber gene from the pBr/Ad.Bam-rITR construct, using primers NY-UP (SEQ ID NO: 36) and NY-DOWN (SEQ ID NO: 37).

FIG. 3: Schematic drawing of construct pBr/Ad.BamRDfib.

FIG. 4: Nucleotide sequence of chimeric fiber Ad5/fib16, SEQ ID NO: 32.

FIG. 5: Schematic drawing of the construct pClipsal-Luc.

FIG. 6: Schematic drawing of the method to generate chimaeric adenoviruses using three overlapping fragments. Early (E) and late regions (L) are indicated. L5 is the fiber coding sequence.

**FIGS. 7A, 7B & 7C:** Sequences including the gene encoding adenovirus 16 fiber protein as published in GenBank with nucleotide sequence SEQ ID NO: 33 and amino acid sequence SEQ ID NO: 35; and sequences including a gene encoding a fiber from an adenovirus 16 variant as isolated in the present invention with nucleotide sequence SEQ ID NO: 38 and amino acid sequence SEQ ID NO: 34, wherein the sequences of the fiber protein are from the NdeI-site. **FIG. 7A** **FIGS. 7A & 7B** nucleotide sequence comparisons of SEQ ID NO: 33 and SEQ ID NO: 38. **FIG. 7B** **FIG. 7C** amino-acid comparisons of SEQ ID NO: 35 and SEQ ID NO: 34.

**FIG. 8:** Infection of synoviocytes using different amounts of virus particles per cell (MOI) and two different adenoviruses: Ad5=Ad5.Clip.Luc; Ad5/16= Ad5.Luc-fib16. Luciferase transgene expression, 48 hours after a 2 hours infection procedure is depicted as relative light units (=RLU) per microgram whole cell lysate. Error bars represent standard error of the mean (SEM).

**FIG. 9:** Infection of synoviocytes using different concentrations of cells. Luciferase transgene expression, 48 hours after a 2 hours infection procedure is depicted as relative light units (=RLU) per microgram total protein. Error bars represent SEM. The actual MOI differed between the cell concentrations and ranged from 20,000 virus particles per cell (cell density 12,500) to 2,500 virus particles per cell (cell density 100,000).

**FIG. 10:** Infection of synoviocytes using different virus exposure periods. Luciferase transgene expression, 48 hours after either a 2 hours or a 20 hours virus exposure is depicted as relative light units (=RLU) per microgram protein. Error bars represent standard deviations.

**FIG. 11:** Synoviocytes were incubated with IG.Ad.CMV.TK or IG.Ad.mlp-I.TK. Cells were cultured with or without GCV.

**FIG. 12:** Bystander killing was assessed in cultures containing both TK-infected and non-TK-infected synoviocytes in a proportion 0/100, 50/50, 25/75 and 0/100. Cells were cultured with or without GCV.

**FIGS. 13 A & B:** X-gal expression in synovial tissue 3 days after intra-articular injection of IG.Ad.CMV.lacZ in the knee. 13A: macroscopy. 13B: direct LacZ staining of synovial tissue counterstained with Mayers Hamalanlosung.

**FIG. 14** is a graph comparing infection of Ad5.luc and Ad5.fib16.luc on RA synoviocytes.

FIG. 15 is a graph depicting the percentage of lacZ positive cells with Ad5.lacZ and Ad5.fib16.lacZ in RA synoviocytes.

FIG. 16 A & 16B are graphs depicting the infection efficiency of Ad5.GFP and Ad5.fib16.GFP in RA synoviocytes and the respective luciferase counts respectively.

FIG. 17 is a graph depicting the infectivity of chimeric adenoviruses on RA synoviocytes.

FIG. 18A is a graph depicting the percentage of infected cells with three B-type fiber-modified viruses on RA synoviocytes.

FIG. 18B is a graph depicting GFP production with three B-type fiber-modified viruses on RA synoviocytes.

FIG. 19 is a graph depicting the comparison of three B-type fiber-modified adenovirus for infectivity on RA synoviocytes.

FIG. 20 is a graph depicting the comparison of infectivity Ad5.lacZ vs. Ad5.fib16.lacZ in RA synoviocytes fro six patients.

IN THE DRAWINGS:

Please delete the drawing figures and replace them with the attached replacement drawing figures.

The attached drawing sheets include FIGS. 1-20. These sheets, which include FIGS. 1-20, replace the original sheets including FIGS. 1-20.

Specifically, FIGS. 1, 3, and 5 have been reduced in size to comply with the requested margin sizes.

FIG. 2 has been revised to be more visible and reproducible.

FIG. 4 has been revised to remove the figure description and rotated on the page to be more uniform and comply with the requested margin sizes.

FIG. 6 has been revised by removing the boxed heading and sized to comply with the requested margin sizes.

FIG. 7A has been revised by rotating and spacing the text on multiple sheets, thus, resulting in FIGS. 7A and 7B.

Revised FIG. 7C shows the text from the previous FIG. 7B and has been revised by rotating and sizing the text to the requested margin sizes.

FIGS. 8-10 have been revised by rotating and resizing the figure to be uniform and within the requested margin sizes.

FIG. 11 has been revised to remove the border and sized to comply with the requested margin sizes.

FIG. 12 has been sized to comply with the requested margin sizes.

FIGS. 13A and 13B are resubmitted as color photographs that comply with the requested margin sizes.

FIGS. 14-20 have been revised by removing the figure description, rotating the figure, and resizing the figure to be uniform and fit within the requested margin sizes.

REMARKS

Although the Examiner indicated the drawings were accepted, this amendment revises the specification and drawings to comply with the objections from the draftsperson dated March 3, 2000. A Petition for the Acceptance of Color Drawings was previously submitted in conjunction with an amendment filed April 18, 2003. A copy of the Petition is submitted herewith for the convenience of the Office. A decision on the petition is requested.

This amendment is submitted prior to or concurrently with the payment of the issue fee and complies with the provisions of 37 C.F.R. § 1.312, therefore, no petition or fee is required. No new matter has been added. Entry of the amendment and the revised drawing figures is requested.

Respectfully submitted,



Andrew F. Nilles  
Registration No. 47,825  
Attorney for Applicants  
TRASKBRITT, PC  
P.O. Box 2550  
Salt Lake City, Utah 84110-2550  
Telephone: 801-532-1922

Date: February 23, 2004  
AFN

Enclosures: Replacement Sheets  
Annotated Sheets Showing Changes  
Courtesy copy of Petition to Accept Color Drawings



THE PATENT & TRADEMARK OFFICE MAILROOM DATE  
STAMPED HEREON IS AN ACKNOWLEDGEMENT THAT ON THIS  
DATE THE PATENT & TRADEMARK OFFICE RECEIVED:

Amendment Under 37 C.F.R. § 1.312(a) (7 pages); Annotated Sheets of  
drawings (24 sheets); Replacement Sheets of drawings (24 sheets); Copy  
of previously submitted Petition for Acceptance of Color Drawings (2  
pages)

Invention: MEANS AND METHODS FOR FIBROBLAST-LIKE  
OR MACROPHAGE-LIKE CELL TRANSDUCTION  
Applicant(s): Vogels et al.  
Filing Date: March 3, 2000  
Serial No.: 09/517,898  
Date Sent: February 23, 2004 via first class mail  
Docket No.: 2578-3982.2US  
AFN/bv



PATENTS ONLY

To the Honorable Commissioner of Patents and Trademarks: Please Record the attached original documents or copy thereof.

1. Name of conveying party(ies):  
Introgen B.V.

Additional name of conveying party(ies) attached?  Yes  No



2. Name and address of receiving party(ies)

Name: Crucell Holland B.V.

Address: Archimedesweg 4, 2333 CN Leiden, The Netherlands

Additional Name(s) & address(es) attached?  Yes  No

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Assignment Recordation Services, Director of the US Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name: Betty Vowles

Signature: Betty Vowles

Date: March 26, 2004

3. Nature of conveyance:

Assignment  Merger  
 Security Agreement  Change of Name  
 Other \_\_\_\_\_

Execution Date: July 12, 2002

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is: \_\_\_\_\_

A. Patent Application No.(s)

09/517,898

B. Patent No.(s)

Additional numbers attached?  Yes  No

5. Name and address of party to whom correspondence concerning this document should be mailed:

Name: TraskBritt

Internal Address: \_\_\_\_\_

Street Address: P.O. Box 2550

City: Salt Lake City State: UT Zip: 84110

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41) . . . . . \$40.00

Enclosed

Authorized to be charged to deposit account

8. Deposit account number:

20-1469

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

9. Statement and signature.

Attorney Docket No.: 2578-3982.2US

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*

Andrew F. Nilles

Name of Person Signing  
Reg. No. 47,825

Signature

March 26, 2004

Date

Total number of pages including cover sheet, attachments, and documents: 10

Mail documents to be recorded with required cover sheet information to:

Mail Stop Assignment Recordation Services  
Director of the United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450